

Tobacco Use – Continued

frequent cigarette users. The prevalence of frequent cigarette use among white students (15.9%) was approximately seven times that among black students (2.3%) and approximately twice that among Hispanic students (7.4%). Among 12th-grade students, the prevalence of frequent cigarette use (17.7%) was almost twice that among 9th-grade students (9.9%).

Reported by: Office on Smoking and Health, and Div of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: Two of the national health promotion and disease prevention objectives for the year 2000 are to "reduce the initiation of cigarette smoking by children and youth so that no more than 15 percent have become regular cigarette smokers by age 20" (objective 3.5) and to "reduce smokeless tobacco use by males aged 12 through 24 to a prevalence of no more than 4 percent" (objective 3.9) (3). To achieve these objectives, programs for preventing tobacco use should be provided in all elementary, middle, and secondary schools—ideally, as part of quality school health education efforts and in conjunction with the establishment of tobacco-free environments on school premises (objective 3.10) (3). Carefully designed and implemented school-based programs for preventing tobacco use have proven effective in delaying onset of smoking among students (4). The National Cancer Institute has developed a guide for implementing effective school-based programs to prevent smoking (5).*

*One to three copies can be obtained from the National Cancer Institute (NCI); telephone (800) 422-6237 ([800] 4-CANCER). For four or more copies, write NCI, Building 31, Room 10A-24, 9000 Rockville Pike, Bethesda, MD 20892.

TABLE 1. Percentage of current tobacco use among high school students, by gender, race/ethnicity, and grade — United States, Youth Risk Behavior Survey, 1990*

Category	Any tobacco use		Cigarette use [†]		Frequent cigarette use [§]		Smokeless tobacco use	
	%	(95% CI [¶])	%	(95% CI)	%	(95% CI)	%	(95% CI)
Gender								
Female	31.7	(±3.1)	31.3	(±3.1)	12.5	(±2.3)	1.4	(±0.5)
Male	40.4	(±5.1)	33.2	(±4.9)	13.0	(±3.6)	19.1	(±5.1)
Race/Ethnicity								
White	41.2	(±4.2)	36.4	(±3.9)	15.9	(±3.1)	12.6	(±3.5)
Female	36.5	(±3.1)	36.0	(±3.1)	16.6	(±2.7)	1.5	(±0.6)
Male	46.0	(±6.1)	36.8	(±5.6)	15.2	(±4.1)	23.9	(±6.9)
Black	16.8	(±2.9)	16.1	(±2.9)	2.3	(±1.0)	1.9	(±0.9)
Female	15.9	(±4.8)	15.7	(±4.8)	1.8	(±0.9)	0.8	(±0.6)
Male	18.0	(±3.3)	16.8	(±3.6)	3.0	(±1.8)	3.1	(±1.8)
Hispanic	32.0	(±4.5)	30.8	(±4.3)	7.4	(±1.6)	5.7	(±2.3)
Female	27.4	(±5.9)	27.2	(±5.8)	5.5	(±2.4)	1.0	(±1.0)
Male	37.3	(±6.3)	34.7	(±6.1)	9.6	(±2.6)	10.9	(±4.6)
Grade								
9th	32.1	(±4.9)	29.5	(±4.4)	9.9	(±3.4)	7.8	(±3.0)
10th	33.9	(±4.5)	30.0	(±3.9)	10.8	(±2.4)	10.9	(±2.8)
11th	36.7	(±4.3)	32.8	(±4.6)	12.6	(±2.9)	9.5	(±2.2)
12th	41.2	(±5.6)	36.7	(±5.4)	17.7	(±4.3)	11.9	(±4.3)
Total	36.0	(±3.7)	32.3	(±3.7)	12.8	(±2.7)	10.1	(±2.5)

*Unweighted sample size=11,631 students.

[†]Smoking cigarettes at any time during the 30 days preceding the survey.

[§]Smoking cigarettes on more than 25 of the 30 days preceding the survey.

[¶]Confidence interval.

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In addition to school-based programs, the national objectives call for the enactment and enforcement of laws prohibiting the sale and distribution of tobacco products to persons <19 years of age (objective 3.13) (3). By June 1991, 47 states and the District of Columbia had enacted laws restricting the sale of tobacco products to minors (CDC, unpublished data, 1991); however, these laws rarely are enforced (6). Other effective strategies may include raising state excise taxes on tobacco products (1), restricting tobacco-product advertising and promotion that target youth <18 years of age (objective 3.15) (3), and banning the sale of cigarettes through vending machines (7,8). A recent survey in 10 communities indicated widespread support for policies that limit minors' access to, and use of, tobacco products (9). The reduction of tobacco use among adolescents will require cooperative efforts by local and state health and education officials, parents, physicians, media, legislators, regulatory agencies, and community youth organizations to implement these strategies.

References

1. CDC. Reducing the health consequences of smoking: 25 years of progress—a report of the Surgeon General. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, 1989; DHHS publication no. (CDC)89-8411.
2. Kolbe LJ. An epidemiological surveillance system to monitor the prevalence of youth behaviors that most affect health. *Health Education* 1990;21:44-7.
3. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives—full report, with commentary. Washington, DC: US Department of Health and Human Services, Public Health Service, 1991:143-52; DHHS publication no. (PHS)91-50212.
4. Glynn TJ. Essential elements of school-based smoking prevention programs. *J School Health* 1989;59:181-8.
5. Glynn TJ. School programs to prevent smoking: the National Cancer Institute guide to strategies that succeed. Washington, DC: US Department of Health and Human Services, Public Health Service, National Institutes of Health, 1990; DHHS publication no. (NIH)90-500.
6. CDC. State laws restricting minors' access to tobacco. *MMWR* 1990;39:349-53.
7. CDC. Cigarette advertising—United States, 1988. *MMWR* 1990;39:261-5.
8. Public Health Service. Model Sale of Tobacco Products to Minors Control Act. Washington, DC: US Department of Health and Human Services, Public Health Service, 1990.
9. CDC. Public attitudes regarding limits on public smoking and regulation of tobacco sales and advertising—10 U.S. communities, 1989. *MMWR* 1991;40:344-5,351-3.

*Epidemiologic Notes and Reports***Chlorine Gas Toxicity from Mixture of Bleach
with Other Cleaning Products — California**

From October 1987 through November 1989, five episodes of chlorine gas exposure with toxicity to at least 14 persons occurred at two state hospitals in California. Each hospital provides inpatient treatment to approximately 1000 forensic psychiatric patients. As part of their rehabilitation programs, selected patients perform cleaning duties under the supervision of janitors or nursing staff. Each incident occurred during the performance of these duties and involved the mixture of bleach (sodium hypochlorite) and a phosphoric acid cleaner by inpatients. This mixture produced chlorine gas and other chemical byproducts (Figure 1a and 1b) and resulted in temporary illness in exposed persons.

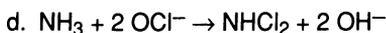
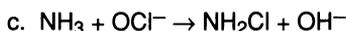
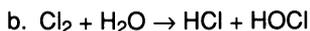
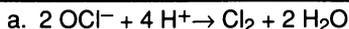
*Chlorine Gas Toxicity – Continued***Hospital A**

Episode 1. On October 18, 1987, a patient poured an undetermined amount of a 4% phosphoric acid cleaner into a bucket containing diluted bleach. A chemical reaction occurred immediately, releasing an irritating gas. The patient was assisted from the room, and the cleaning solution was diluted with water and poured down a drain. Windows were opened to ventilate the area, and the ward was evacuated. The patient complained of anxiety, chest tightness, difficulty breathing, and heartburn; physical examination revealed scattered bibasilar pulmonary rhonchi. He was treated with supplementary oxygen, and most symptoms subsided after 1 hour.

Episode 2. On December 19, 1987, a patient mopped a bathroom floor with a 4% phosphoric acid solution, then rinsed the floor with water. Immediately after he applied a bleach and water solution to the floor, a noxious gas with a strong odor was emitted. The mixture was poured down a drain, and the floor was again rinsed with water; however, because the room's exhaust fan was inoperative and windows had been sealed shut, the gas dispersed throughout the ward and caused symptoms in other patients. The ward was evacuated; patients and staff returned after 1½ hours when the odor had dissipated. Within an hour of their return, additional patients and staff complained of symptoms including nausea, eye irritation, tearing, sore throat, headache, cough, and chest tightness; one patient had an acute exacerbation of asthma. The ward was reevacuated until the following day. The local fire department assisted with ventilation.

Episode 3. On December 25, 1987, a patient mixed approximately ½ L of bleach and 1 L of a 4% phosphoric acid cleaner in a bucket, creating a noxious gas. The patient rapidly developed eye irritation followed by fatigue; four employees developed symptoms that included a lightheaded dizziness, nausea, eye and nose irritation, headache, and chest tightness. The ward was evacuated until chemical residues on the bathroom floors had been rinsed and air exchange had been completed using the existing exhaust fan system. For some persons, symptoms persisted for several hours. More than an hour after the episode, two employees entered an enclosed nursing office 50 feet from the gas release site; despite the absence of a detectable chlorine odor, both promptly experienced recurrent symptoms.

Following these three incidents, patients and employees were interviewed to establish policies to prevent recurrences. Each incident involved the same phosphoric acid formulation. The three patients had been supervised by different staff; they denied mixing the chemicals intentionally to create a disturbance, denied knowing each other, and denied knowledge of previous episodes. Each incident occurred on a weekend or holiday, when janitors were off duty and the patients were cleaning bathroom floors while being supervised by ward nursing staff without constant observation.

FIGURE 1. Net ionic chemical equations for reactions following mixing of hypochlorite with other cleaning products

Chlorine Gas Toxicity – Continued

Beginning December 29, controls were instituted on the storage and use of the phosphoric acid cleaner at hospital A. The cleaner was dispensed by housekeeping supervisors or janitors, who kept it locked in storage areas accessible to employees only.

Episode 4. Despite more stringent controls over the use of cleaning products, a fourth episode occurred. On November 3, 1989, a patient supervised by a new employee was allowed in a locked storage area and poured an undetermined amount of 4% phosphoric acid cleaner into a bucket containing bleach and water, immediately producing a cloud of noxious vapor.

The employee assisted the patient from the area, then returned to the area and poured the contents of the bucket down a sink. The employee, who was exposed to the vapors for less than 1 minute, reported immediate throat and nasal burning that persisted for more than 24 hours, as well as transient dizziness and nausea. Supplemental oxygen was administered at a local acute-care hospital emergency room for 3 hours. The employee completely recovered within 36 hours following exposure. The patient had no symptoms.

Following this incident, acidic cleaning products at hospital A were locked in the offices of housekeeping supervisors; access was available only to janitors and was denied to both nursing staff and patients. In addition, the hospital has prohibited the mixing of cleaning products. No further incidents have occurred.

Hospital B

On December 7, 1988, a patient assisting in janitorial duties mixed bleach with phosphoric acid cleaner. Immediately a noxious gas with a strong odor was detected and prompted the evacuation of two wards for 1½ hours. Fire department personnel using self-contained breathing equipment disposed of the chemicals and ventilated the area.

The patient experienced vomiting, cough, and inspiratory discomfort; elevated blood pressure and fever were noted when the patient was treated in the emergency room. Five employees who helped evacuate the ward complained of symptoms including eye irritation and shortness of breath. Employees and patients returned approximately 1½ hours after the area was ventilated. After this incident, hospital B instituted warning labels on all chemical cleaning products and posted precautionary (i.e., "do not mix") signs on janitorial closets. Bleach and acidic cleaning products were restricted to use by staff. No further incidents involving phosphoric acid products have occurred at this hospital.

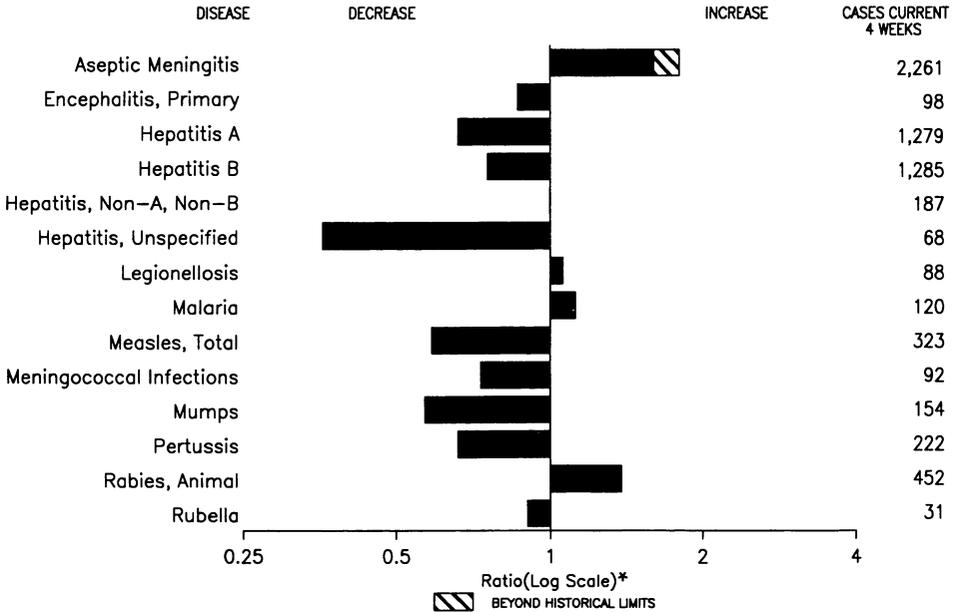
Product Label Investigation and Modifications

The label of the phosphoric acid cleaner involved in all five incidents did not list the active ingredient nor warn of the potential for toxic reactions when phosphoric acid was mixed with other chemicals. The material safety data sheet (MSDS) did not describe potentially toxic chemical reactions or incompatibilities. The labels and MSDSs of two other products containing phosphoric acid in use at hospital A, including one with a 30% acid concentration, also lacked information on reactions and incompatibilities with hypochlorite.

After notification by hospital A in December 1987 about episodes 1-3, a new label was supplied by the chemical manufacturer in early 1988 for use by institutional customers wishing to transfer the product into smaller storage containers. The new label included the statement: "Do not mix with other chemicals (such as bleach or ammonia)." In 1989, the product's label was revised to add a similar statement. The MSDS was revised in May 1991; it now mentions incompatibility with ammonia or bleach but still does not state what will result from those mixtures.

(Continued on page 627)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending September 7, 1991, with historical data – United States



*Ratio of current 4-week total to the mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary – cases of specified notifiable diseases, United States, cumulative, week ending September 7, 1991 (36th Week)

	Cum. 1991		Cum. 1991
AIDS	30,168	Measles: imported	162
Anthrax	-	indigenous	8,045
Botulism: Foodborne	12	Plague	2
Infant	51	Poliomyelitis, Paralytic*	-
Other	4	Psittacosis	60
Brucellosis	51	Rabies, human	2
Cholera	17	Syphilis, primary & secondary	28,187
Congenital rubella syndrome	13	Syphilis, congenital, age < 1 year	15
Diphtheria	2	Tetanus	32
Encephalitis, post-infectious	61	Toxic shock syndrome	208
Gonorrhea	403,074	Trichinosis	58
<i>Haemophilus influenzae</i> (invasive disease)	2,113	Tuberculosis	15,113
Hansen Disease	106	Tularemia	120
Leptospirosis	42	Typhoid fever	262
Lyme Disease	5,527	Typhus fever, tickborne (RMSF)	436

*Three suspected cases of poliomyelitis have been reported in 1991; none of the 8 suspected cases in 1990 have been confirmed to date. Five of 13 suspected cases in 1989 were confirmed and all were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending September 7, 1991, and September 8, 1990 (36th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
UNITED STATES	30,168	8,415	588	61	403,074	469,129	16,303	11,544	2,038	881	796	5,527
NEW ENGLAND	1,258	949	23	1	9,447	12,784	404	600	54	24	52	1,035
Maine	46	89	3	-	117	150	19	18	2	-	2	-
N.H.	32	106	5	-	154	147	24	21	5	-	6	28
Vt.	13	193	3	-	41	40	21	12	6	-	2	5
Mass.	714	262	10	1	3,786	5,305	192	415	29	21	39	102
R.I.	62	292	-	-	799	814	75	19	10	3	3	107
Conn.	391	7	2	-	4,550	6,328	73	115	2	-	-	793
MID. ATLANTIC	8,179	1,366	44	11	46,662	62,524	1,537	1,037	205	15	214	3,322
Upstate N.Y.	1,017	696	19	7	8,725	9,473	618	402	121	9	77	2,186
N.Y. City	4,652	182	1	-	16,548	26,791	494	145	5	-	24	-
N.J.	1,675	-	-	-	8,128	10,321	177	228	42	-	23	580
Pa.	835	488	24	4	13,261	15,939	248	262	37	6	90	556
E.N. CENTRAL	2,157	1,637	177	7	75,568	89,222	2,137	1,368	336	42	173	159
Ohio	403	629	65	2	23,263	26,475	283	296	136	16	82	96
Ind.	210	114	14	1	7,989	7,828	284	159	1	1	13	8
Ill.	1,019	270	53	4	23,083	28,112	926	207	50	4	17	5
Mich.	370	548	41	-	16,899	20,613	222	440	90	21	33	50
Wis.	155	76	4	-	4,334	6,194	422	266	59	-	28	-
W.N. CENTRAL	793	438	41	7	20,156	23,801	1,651	495	217	18	38	206
Minn.	169	79	20	-	2,076	2,944	299	54	11	2	6	62
Iowa	78	90	-	4	1,353	1,735	40	34	8	3	10	14
Mo.	437	193	12	3	12,349	14,096	446	325	191	8	12	120
N. Dak.	4	5	2	-	30	98	32	4	4	1	1	1
S. Dak.	1	8	4	-	240	164	591	7	1	-	3	-
Nebr.	42	20	2	-	1,268	1,257	174	28	1	-	5	-
Kans.	62	43	1	-	2,840	3,507	69	43	1	4	1	9
S. ATLANTIC	7,271	1,539	115	27	121,944	133,551	1,187	2,416	275	183	132	420
Del.	53	49	2	-	1,895	2,125	7	32	4	2	2	41
Md.	677	145	20	1	12,522	15,194	202	284	47	13	28	162
D.C.	484	48	1	-	6,586	9,097	58	120	1	1	6	2
Va.	542	237	31	3	12,156	12,634	121	148	23	123	11	87
W. Va.	46	25	10	-	846	860	17	40	2	10	-	28
N.C.	351	207	25	-	24,468	20,895	118	380	96	-	14	57
S.C.	249	32	-	-	9,915	10,761	31	510	16	3	26	8
Ga.	1,008	227	7	2	28,742	29,416	152	365	37	-	13	21
Fla.	3,861	569	19	21	24,814	32,569	481	537	49	31	32	14
E.S. CENTRAL	735	533	25	-	40,161	40,707	159	955	268	3	41	84
Ky.	122	121	7	-	4,134	4,663	25	125	5	2	15	33
Tenn.	236	177	13	-	13,963	12,067	98	711	243	-	11	38
Ala.	235	207	5	-	12,193	14,158	30	110	16	1	14	13
Miss.	142	28	-	-	9,871	9,819	6	9	4	-	1	-
W.S. CENTRAL	2,953	1,003	66	1	46,297	50,538	2,284	1,557	89	175	32	56
Ark.	129	52	24	-	5,586	6,061	216	74	3	5	7	19
La.	506	87	11	-	10,400	9,477	88	210	6	5	6	1
Okla.	142	2	3	-	4,826	4,484	191	165	38	12	10	27
Tex.	2,176	862	28	1	25,485	30,516	1,789	1,108	42	153	9	9
MOUNTAIN	837	155	14	2	8,389	10,009	2,579	701	110	109	60	13
Mont.	22	13	1	-	71	124	67	55	4	5	4	-
Idaho	17	-	-	-	103	98	67	55	1	-	3	2
Wyo.	12	-	-	-	68	125	90	6	-	-	-	8
Colo.	304	54	4	1	2,313	2,848	398	101	48	17	13	-
N. Mex.	64	16	-	-	740	890	656	162	10	29	3	-
Ariz.	177	38	9	1	3,119	3,797	839	126	15	47	22	-
Utah	82	12	-	-	216	295	204	53	11	11	4	-
Nev.	159	22	-	-	1,759	1,832	258	143	21	-	11	3
PACIFIC	5,985	795	83	5	34,450	45,993	4,365	2,415	484	312	54	232
Wash.	392	-	8	1	3,072	4,098	412	313	105	18	5	2
Oreg.	183	-	-	-	1,391	1,756	281	225	87	8	2	-
Calif.	5,271	723	73	4	28,881	38,845	3,560	1,817	275	285	45	230
Alaska	15	32	2	-	574	829	85	25	13	1	-	-
Hawaii	124	40	-	-	532	465	27	35	4	-	2	-
Guam	2	-	-	-	-	205	-	-	-	-	-	-
P.R.	1,267	193	2	3	399	460	69	328	144	41	-	-
V.I.	12	-	-	-	280	302	1	9	-	-	-	-
Amer. Samoa	-	-	-	-	-	69	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	154	-	-	-	-	-	-

N: Not notifiable

U: Unavailable

C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 7, 1991, and September 8, 1990 (36th Week)

Reporting Area	Malaria	Measles (Rubeola)					Meningococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total		1991	Cum. 1991	1991	Cum. 1991	Cum. 1990	1991	Cum. 1991	Cum. 1990
		1991	Cum. 1991	1991	Cum. 1991	Cum. 1990									
UNITED STATES	793	62	8,045	6	162	20,468	1,509	19	3,029	59	1,592	2,703	13	1,103	785
NEW ENGLAND	54	-	52	-	12	284	114	-	23	1	226	277	-	4	8
Maine	1	-	2	-	-	29	9	-	1	49	10	-	-	-	1
N.H.	2	-	-	-	-	8	12	-	3	-	17	40	-	1	1
Vt.	4	-	5	-	-	1	13	-	4	-	4	6	-	-	-
Mass.	26	-	25	-	10	25	63	-	1	134	203	-	2	2	2
R.I.	7	-	2	-	-	30	1	-	3	-	2	-	-	1	3
Conn.	14	-	18	-	2	191	16	-	12	-	22	16	-	-	1
MID. ATLANTIC	120	13	4,311	-	6	1,326	158	2	230	14	140	413	-	559	11
Upstate N.Y.	36	-	334	-	4	313	80	-	83	9	91	283	-	537	10
N.Y. City	44	10	1,710	-	-	328	9	-	-	-	-	-	-	-	-
N.J.	31	-	730	-	1	310	33	-	54	-	1	28	-	-	-
Pa.	9	3	1,537	-	1	375	36	2	93	5	48	102	-	22	1
E.N. CENTRAL	63	1	70	-	11	3,507	235	-	272	9	262	740	1	181	31
Ohio	14	-	1	-	2	537	77	-	62	-	87	139	-	147	1
Ind.	3	1	1	-	2	412	19	-	6	-	58	97	1	2	-
Ill.	24	-	25	-	-	1,333	67	-	104	-	48	289	-	6	18
Mich.	19	-	41	-	-	473	50	-	81	7	32	64	-	25	9
Wis.	3	-	2	-	7	752	22	-	19	2	37	151	-	1	3
W.N. CENTRAL	25	3	37	4	10	798	83	1	91	6	120	124	-	17	14
Minn.	7	2	11	4†	9	321	17	1	17	2	45	21	-	6	9
Iowa	5	1	16	-	-	26	10	-	16	1	14	17	-	6	4
Mo.	6	-	-	-	1	98	29	-	26	2	42	68	-	5	-
N. Dak.	1	-	-	-	-	-	1	-	1	-	2	2	-	-	1
S. Dak.	1	-	-	-	-	23	2	-	2	-	3	1	-	-	-
Nebr.	1	-	1	-	-	106	6	-	5	1	8	6	-	-	-
Kans.	4	-	9	-	-	224	18	-	24	-	6	9	-	-	-
S. ATLANTIC	171	5	440	-	20	1,188	280	1	1,068	5	183	224	-	13	18
Del.	2	-	21	-	-	11	2	-	6	-	7	-	-	-	-
Md.	49	-	173	-	1	210	27	-	206	-	46	54	-	6	2
D.C.	9	-	-	-	-	22	12	-	23	-	-	14	-	1	1
Va.	36	-	24	-	5	75	29	-	49	-	18	15	-	-	1
W. Va.	2	-	-	-	-	6	12	-	16	-	9	16	-	-	-
N.C.	12	2	40	-	3	30	49	1	224	3	28	59	-	2	-
S.C.	9	-	13	-	-	4	28	-	345	-	10	5	-	-	-
Ga.	17	-	10	-	5	282	57	-	38	1	34	24	-	-	-
Fla.	35	3	159	-	6	548	64	-	161	1	38	30	-	4	14
E.S. CENTRAL	18	-	7	-	2	166	99	1	155	2	67	116	-	100	4
Ky.	2	-	1	-	1	36	36	-	-	-	-	-	-	-	1
Tenn.	10	-	6	-	1	82	31	1	128	2	27	52	-	100	3
Ala.	6	-	-	-	-	22	31	-	8	-	40	57	-	-	-
Miss.	-	-	-	-	-	26	1	-	19	-	7	-	-	-	-
W.S. CENTRAL	54	-	168	-	14	4,092	111	8	336	9	54	96	1	6	66
Ark.	7	-	-	-	5	42	16	2	42	1	5	8	-	1	3
La.	13	-	-	-	-	10	24	-	22	-	12	22	-	-	-
Okla.	7	-	-	-	-	173	13	-	13	-	23	35	-	-	1
Tex.	27	-	168	-	9	3,867	58	6	259	8	14	31	1	5	62
MOUNTAIN	34	9	1,003	-	19	908	59	2	288	2	164	237	3	15	108
Mont.	1	-	-	-	-	1	10	-	-	-	2	26	-	-	13
Idaho	2	3	407	-	2	26	7	-	8	-	23	38	-	2	49
Wyo.	-	-	1	-	2	15	1	-	3	-	3	-	-	-	-
Colo.	9	-	1	-	5	137	11	1	123	1	72	77	-	1	4
N. Mex.	6	-	117	-	5	93	8	N	N	1	30	17	-	-	-
Ariz.	13	-	274	-	-	292	16	1	129	-	8	49	-	2	32
Utah	2	6	185	-	4	127	-	-	13	-	24	26	3	6	2
Nev.	1	-	18	-	1	217	6	-	12	-	2	4	-	4	8
PACIFIC	254	31	1,957	2	68	8,199	370	4	566	11	376	476	8	208	525
Wash.	18	-	46	-	15	254	51	-	154	5	96	121	-	8	-
Oreg.	5	5	47	2‡	33	212	45	N	N	-	54	58	1	3	9
Calif.	227	26	1,860	-	12	7,641	265	4	382	6	179	255	7	192	503
Alaska	-	-	-	-	3	80	7	-	10	-	12	4	-	1	-
Hawaii	4	-	4	-	5	12	2	-	20	-	35	38	-	4	13
Guam	-	U	-	U	-	1	-	U	-	U	-	-	U	-	-
P.R.	1	-	93	-	1	1,636	15	-	9	3	44	6	-	1	-
V.I.	2	-	-	-	2	24	-	-	9	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	521	-	U	-	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	U	-	4	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International ‡Out-of-state

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 7, 1991, and September 8, 1990 (36th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic- shock Syndrome	Tuberculosis		Tula- remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991
UNITED STATES	28,187	33,835	208	15,113	15,989	120	262	436	4,879
NEW ENGLAND	715	1,202	11	422	380	2	27	5	48
Maine	1	7	4	30	-	-	1	-	-
N.H.	12	44	1	5	3	-	1	-	2
Vt.	1	1	-	4	7	-	-	-	-
Mass.	328	467	6	202	211	2	24	4	-
R.I.	39	14	-	59	49	-	-	-	-
Conn.	334	669	-	122	110	-	1	1	46
MID. ATLANTIC	4,372	6,711	32	3,512	3,846	1	50	13	1,433
Upstate N.Y.	103	613	15	240	286	1	10	7	533
N.Y. City	2,148	3,118	1	2,171	2,446	-	25	-	-
N.J.	934	1,111	-	606	620	-	12	3	660
Pa.	1,187	1,869	16	495	494	-	3	3	240
E.N. CENTRAL	3,420	2,417	40	1,561	1,519	6	18	33	119
Ohio	461	385	19	225	260	1	2	20	14
Ind.	116	60	-	151	134	-	-	9	8
Ill.	1,602	974	13	826	776	3	5	3	27
Mich.	881	736	8	292	289	2	10	1	31
Wis.	360	262	-	67	60	-	1	-	39
W.N. CENTRAL	496	359	32	356	412	39	5	29	629
Minn.	47	70	7	68	69	1	2	-	225
Iowa	48	45	6	52	43	-	-	1	123
Mo.	354	182	10	151	213	32	1	17	15
N. Dak.	-	1	-	5	17	-	-	-	70
S. Dak.	1	2	1	26	9	4	-	1	143
Nebr.	11	9	1	14	15	-	2	5	13
Kans.	35	50	7	40	46	2	-	5	40
S. ATLANTIC	8,574	10,925	19	2,871	2,939	4	49	191	1,027
Del.	114	129	-	21	29	-	-	-	115
Md.	687	805	1	266	232	-	8	21	383
D.C.	539	734	1	126	104	-	2	-	9
Va.	628	630	3	230	257	-	8	10	181
W. Va.	21	11	-	47	52	-	1	4	42
N.C.	1,347	1,228	8	379	363	1	2	107	14
S.C.	1,080	705	2	286	323	1	3	29	77
Ga.	2,125	2,799	-	573	489	1	5	19	182
Fla.	2,033	3,884	3	943	1,090	1	20	1	24
E.S. CENTRAL	3,185	2,950	9	1,064	1,122	13	2	80	672
Ky.	66	66	4	241	273	4	2	20	36
Tenn.	1,064	1,168	5	323	277	8	-	45	29
Ala.	1,187	919	-	276	355	1	-	15	607
Miss.	868	797	-	224	217	-	-	-	-
W.S. CENTRAL	5,168	5,677	14	1,855	1,941	34	18	75	473
Ark.	478	366	3	163	249	24	-	17	36
La.	1,745	1,748	-	184	236	-	3	-	5
Okla.	137	175	4	119	138	10	1	58	138
Tex.	2,808	3,388	7	1,389	1,318	-	14	-	294
MOUNTAIN	437	634	27	412	367	16	7	7	158
Mont.	6	-	1	6	22	7	-	5	35
Idaho	3	6	-	4	10	-	-	-	3
Wyo.	9	1	-	3	4	1	-	-	61
Colo.	58	40	5	33	20	4	1	2	12
N. Mex.	24	32	6	54	81	-	1	-	4
Ariz.	264	456	5	227	159	1	4	-	30
Utah	6	8	10	39	22	3	-	-	9
Nev.	67	91	-	46	49	-	1	-	4
PACIFIC	1,820	2,960	24	3,060	3,463	5	86	3	320
Wash.	111	279	3	197	192	2	4	2	1
Oreg.	53	101	-	77	89	2	4	1	4
Calif.	1,648	2,552	21	2,602	3,027	1	75	-	311
Alaska	4	13	-	44	36	-	-	-	3
Hawaii	4	15	-	140	119	-	3	-	1
Guam	-	2	-	-	33	-	-	-	-
P.R.	306	204	-	167	66	-	9	-	52
V.I.	78	8	-	2	4	-	-	-	-
Amer. Samoa	-	-	-	-	13	-	-	-	-
C.N.M.I.	-	3	-	-	44	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending
September 7, 1991 (36th Week)

Reporting Area	All Causes, By Age (Years)					P&I**	Total	Reporting Area	All Causes, By Age (Years)					P&I**	Total
	All Ages	≥65	45-64	25-44	1-24				<1	All Ages	≥65	45-64	25-44		
NEW ENGLAND	574	384	112	42	16	20	20	S. ATLANTIC	1,093	651	225	148	43	26	42
Boston, Mass.	159	91	39	16	7	6	7	Atlanta, Ga.	126	75	23	25	3	-	4
Bridgeport, Conn.	38	33	4	-	-	1	1	Baltimore, Md.	133	78	29	17	6	3	12
Cambridge, Mass.	18	12	4	2	-	-	2	Charlotte, N.C.	73	51	10	9	2	1	2
Fall River, Mass.	25	20	5	-	-	-	-	Jacksonville, Fla.	117	68	35	10	4	-	8
Hartford, Conn.	57	32	13	8	2	2	-	Miami, Fla.	121	68	22	27	4	-	-
Lowell, Mass.	33	26	4	2	-	1	-	Norfolk, Va.	52	29	10	6	2	5	4
Lynn, Mass.	12	11	1	-	-	-	-	Richmond, Va.	73	43	13	10	4	3	-
New Bedford, Mass.	22	16	3	2	1	-	-	Savannah, Ga.	51	33	11	5	1	1	1
New Haven, Conn.	43	32	8	2	-	1	1	St. Petersburg, Fla.	56	42	5	5	-	4	-
Providence, R.I.	45	29	11	1	1	3	1	Tampa, Fla.	145	89	34	11	8	3	9
Somerville, Mass.	6	4	1	1	-	-	-	Washington, D.C.	120	57	27	22	9	5	2
Springfield, Mass.	38	24	6	4	3	1	1	Wilmington, Del.	26	18	6	1	-	1	-
Waterbury, Conn.	25	20	4	-	1	-	2	E.S. CENTRAL	648	409	130	49	30	29	40
Worcester, Mass.	53	34	9	4	1	5	5	Birmingham, Ala.	87	45	24	7	5	6	2
MID. ATLANTIC	2,351	1,477	461	288	78	47	132	Chattanooga, Tenn.	50	34	7	4	2	3	2
Albany, N.Y.	51	33	8	8	-	2	4	Knoxville, Tenn.	84	45	23	10	5	1	2
Allentown, Pa.	25	17	5	3	-	-	1	Louisville, Ky.	76	55	14	3	2	2	4
Buffalo, N.Y.	100	66	22	5	4	3	2	Memphis, Tenn.	157	92	30	12	7	15	22
Camden, N.J.	46	24	13	6	2	1	3	Mobile, Ala.	40	30	5	4	-	1	4
Elizabeth, N.J.	27	18	7	1	1	-	2	Montgomery, Ala.	33	22	4	2	5	-	-
Erie, Pa.†	36	28	6	1	-	1	1	Nashville, Tenn.	121	86	23	7	4	1	4
Jersey City, N.J.	65	23	16	8	10	8	2	W.S. CENTRAL	1,089	654	220	133	50	32	51
New York City, N.Y.	1,215	743	237	176	38	21	61	Austin, Tex.	47	30	11	4	2	-	3
Newark, N.J.	59	26	14	14	4	1	7	Baton Rouge, La.	46	29	9	7	1	-	-
Paterson, N.J.	26	13	8	5	-	-	2	Corpus Christi, Tex.	41	31	9	-	-	-	-
Philadelphia, Pa.	304	193	62	34	8	7	16	Dallas, Tex.	138	73	35	22	4	4	4
Pittsburgh, Pa.†	67	50	9	7	1	-	7	El Paso, Tex.	65	41	7	10	3	4	5
Reading, Pa.	31	22	5	4	-	-	7	Ft. Worth, Tex.	71	44	17	3	3	4	4
Rochester, N.Y.	120	94	18	4	3	1	9	Houston, Tex.	259	122	55	45	25	12	17
Schenectady, N.Y.	28	19	6	3	-	-	1	Little Rock, Ark.	53	36	8	5	2	2	-
Scranton, Pa.†	29	23	4	2	-	-	4	New Orleans, La.	87	49	21	14	2	1	-
Syracuse, N.Y.	83	56	16	3	7	1	2	San Antonio, Tex.	151	110	25	12	2	2	8
Trenton, N.J.	22	14	3	4	-	1	1	Shreveport, La.	61	39	14	6	2	-	6
Utica, N.Y.	17	15	2	-	-	-	-	Tulsa, Okla.	70	50	9	5	4	2	4
Yonkers, N.Y.‡	U	U	U	U	U	U	U	MOUNTAIN	557	340	108	65	19	24	26
E.N. CENTRAL	1,829	1,130	352	180	103	64	88	Albuquerque, N.M.	49	26	12	6	2	2	1
Akron, Ohio	38	22	11	2	-	3	-	Colo. Springs, Colo.	34	23	6	3	1	1	3
Canton, Ohio	51	41	6	2	1	1	3	Denver, Colo.	92	54	15	15	2	6	9
Chicago, Ill.	328	123	69	68	57	11	16	Las Vegas, Nev.	92	56	20	6	6	4	4
Cincinnati, Ohio	100	72	19	5	2	2	9	Ogden, Utah	20	18	1	-	-	1	-
Cleveland, Ohio	122	80	28	7	2	5	3	Phoenix, Ariz.	130	79	27	15	2	7	2
Columbus, Ohio	170	102	37	22	6	3	5	Pueblo, Colo.	19	11	4	4	-	1	2
Dayton, Ohio	98	65	18	10	4	1	9	Salt Lake City, Utah	40	23	5	7	4	1	-
Detroit, Mich.	189	118	38	17	6	10	5	Tucson, Ariz.	81	50	18	9	2	2	3
Evansville, Ind.	37	29	5	1	1	1	1	PACIFIC	1,143	763	201	112	38	28	78
Fort Wayne, Ind.	55	38	9	4	3	1	2	Berkeley, Calif.	9	7	2	-	-	-	-
Gary, Ind.	16	6	3	4	3	-	-	Fresno, Calif.	96	65	18	3	5	5	8
Grand Rapids, Mich.	55	38	10	5	1	1	3	Glendale, Calif.§	U	U	U	U	U	U	U
Indianapolis, Ind.	161	95	32	15	9	10	9	Honolulu, Hawaii	73	50	15	4	2	2	9
Madison, Wis.	27	18	4	-	3	2	1	Long Beach, Calif.	84	49	20	7	4	4	6
Milwaukee, Wis.	128	102	18	4	1	3	10	Los Angeles, Calif.§	U	U	U	U	U	U	U
Peoria, Ill.	43	25	8	4	2	4	2	Oakland, Calif.§	U	U	U	U	U	U	U
Rockford, Ill.	48	35	4	3	1	5	3	Pasadena, Calif.	21	13	4	3	-	1	-
South Bend, Ind.	42	28	13	1	-	-	3	Portland, Ore.	102	76	15	5	2	3	6
Toledo, Ohio	60	41	13	6	-	-	3	Sacramento, Calif.	128	89	21	11	4	3	9
Youngstown, Ohio	61	52	7	-	1	1	1	San Diego, Calif.	113	67	22	15	8	1	14
W.N. CENTRAL	674	486	96	55	24	13	24	San Francisco, Calif.	148	88	28	26	4	2	5
Des Moines, Iowa	67	49	10	6	-	2	3	San Jose, Calif.	138	93	26	13	5	1	12
Duluth, Minn.	18	13	2	2	1	-	-	Seattle, Wash.	90	70	8	12	-	-	2
Kansas City, Kans.	22	14	6	2	-	-	-	Spokane, Wash.	56	39	9	4	2	2	3
Kansas City, Mo.	115	83	14	12	6	-	4	Tacoma, Wash.	85	57	13	9	2	4	4
Lincoln, Neb.	31	23	6	1	1	-	-	TOTAL	9,958††	6,294	1,905	1,072	401	283	501
Minneapolis, Minn.	146	103	22	13	7	1	7								
Omaha, Neb.	63	45	9	5	1	3	3								
St. Louis, Mo.	120	88	17	6	3	6	-								
St. Paul, Minn.	51	37	7	4	3	-	7								
Wichita, Kans.	41	31	3	4	2	1	-								

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week.

‡Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Report for this week is unavailable (U).

Chlorine Gas Toxicity – Continued

The product is marketed directly by the manufacturer to institutions in Arizona, California, Montana, Oregon, and Washington. It is not sold in stores to the general public and therefore is not considered a consumer product by the U.S. Consumer Product Safety Commission (CPSC) and is exempt from labeling requirements of the federal Hazardous Substances Act. However, according to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA), as a California workplace product it is subject to the state's hazard communication standards, which require the label to list the phosphoric acid and appropriate hazard warnings and the MSDS to include reactivity and incompatibilities; the wording to describe the chemical interactions is not specified by law (R.E. Erickson, Cal-OSHA, personal communication, 1991).

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Editorial Note: The chemicals involved in the first three incidents were a standard household bleach (5.25% sodium hypochlorite solution [NaOCl]) and a 4% phosphoric acid (H_3PO_4) cleaning agent. When sodium hypochlorite and an acid are mixed, chlorine gas and water are released (Figure 1a). Chlorine gas reacts with the water to form hydrochloric and hypochlorous acids (Figure 1b). Chlorine gas may cause a variety of symptoms as a function of the severity of exposure (1-3). Hydrochloric acid also causes inflammation that may, along with nascent oxygen release, be one of the mechanisms of tissue damage by chlorine (4).

Mild mucous membrane irritation may occur in some persons after several hours at levels as low as the threshold limit value (TLV) of 1 ppm (1,3); this TLV may warrant reassessment (1). A level of at least 3 ppm may cause extreme irritation of the eyes and respiratory tract, but a detectable odor is usually not present below 3.5 ppm (2). Symptoms following exposure to chlorine have included irritation of the eyes, nose, and throat; dizziness; cough; and chest pain or constriction. Severe exposure may cause pulmonary edema, bronchiolar and alveolar damage, and pneumomediastinum (1,2,4-6).

When bleach is mixed with ammonia-containing compounds, monochloramine (NH_2Cl) (Figure 1c) and dichloramine ($NHCl_2$) (Figure 1d) are formed, which may produce tearing, respiratory tract irritation, and nausea. These compounds decompose in water to hypochlorous acid and free ammonia gas (6-8); the former combines with moisture forming hydrochloric acid and toxic nascent oxygen (8); the latter is a respiratory and mucous membrane irritant and can cause pulmonary edema and pneumonia (6,7).

Only four case reports have been published of chlorine toxicity from mixing bleach with acid cleaning agents, including one describing near-fatal pulmonary edema, two of pneumomediastinum, and one of mild illness in which other family members also became symptomatic. None of these reports involved phosphoric acid; in three, inadequate ventilation probably contributed to the toxic effects (4-6). However, the American Association of Poison Control Centers data collection system listed 409 cases of chlorine exposure in 1990 from acid mixtures with hypochlorite that were reported from 72 participating centers serving 77% of the U.S. population. Of these cases, 395 (97%) were unintentional exposures and 356 (87%) occurred among persons aged >17 years; 128 required treatment in health-care facilities. Of 340 exposures for which outcome was known, 292 were considered to have caused minor and 30 moderate illness (9). Cases recorded by poison-control centers probably underrepresent substantially the episodes actually occurring; for example, no poison-control center was consulted about the five incidents in this report.

Chlorine Gas Toxicity – Continued

A directive for CPSC compliance staff for monitoring the chemical product industry requires labels on consumer products containing 5% or more hypochlorite to include warnings against mixing with acids and other household chemicals and for labels of products containing 3% or more ammonia to warn against mixing with chlorine-type bleaches or other household chemicals (10). There is no required warning for phosphoric acid, nor does the CPSC routinely inspect any chemical consumer products. Products sold only for institutional or other workplace use are not monitored by CPSC, and the responsible occupational health and safety agencies (the federal Occupational Safety and Health Administration or a state agency) rely on manufacturers/importers and employers to be informed of potential health hazards of workplace chemicals and to inform customers and employees by MSDSs (11,12). Agencies monitor workplace chemical labeling and MSDSs by periodic inspections, with feedback to companies with deficiencies (13). The probability that any given chemical product will be reviewed by this process is low. No complete compilation has been made of the millions of consumer and industrial chemical product formulations, labels, and MSDSs in the United States. There is no federal requirement that wording on labels and MSDSs be cleared by a regulatory agency as a precondition for sale or distribution of chemical products.

Three approaches can be implemented to prevent potential toxic exposures in institutional and other industrial settings from mixtures of bleach with other cleaning agents:

1. Housekeeping policies should be established in institutions to educate new or untrained employees and patients or inmates who assist in cleaning about the potential danger of chemical mixtures and to provide constant supervision for persons whose judgement may be impaired. When this is not possible, use of such chemicals should be restricted to fully trained and experienced employees.
2. When chlorine gas is unintentionally released, areas in which the gas could circulate should be evacuated until sufficient air exchanges have occurred to ensure that the gas has been eliminated. The absence of odor is not a reliable indicator of safety. Pending the complete evacuation of gas, employees involved in cleanup or onsite investigation of such incidents should wear protective respiratory equipment, and none should enter without a companion (14).
3. OSHA and state agencies designated by federally approved state occupational safety and health plans should contact all known manufacturers and importers of cleaning products that contain hypochlorite, acids, or ammonia and are used in institutions and other workplaces to clarify and reinforce proper labeling and MSDS requirements and to encourage education of their customers about nonmixing.

References

1. Arena JM. Poisoning—toxicology, symptoms, treatment. 5th ed. Springfield, Illinois: Charles C. Thomas, 1986:298-300,316-8,692.
2. Sax NI, Lewis RJ. Dangerous properties of industrial materials. 7th ed. Vol2. New York: Van Nostrand Reinhold, 1989:768.
3. Ellenhorn MJ, Barceloux DG. Medical toxicology: diagnosis and treatment of human poisonings. New York: Elsevier, 1988:878,891,903.
4. Jones FL. Chlorine poisoning from mixing household cleaners [Letter]. JAMA 1972;222:1312.
5. Gapany-Gapanavicius M, Yellin A, Almog S, Tirosh M. Pneumomediastinum—a complication of chlorine exposure from mixing household cleaning agents. JAMA 1982;248:349-50.
6. Faigel HC. Hazards to health: mixtures of household cleaning agents. N Engl J Med 1964;271:618.
7. Gosselin RE. Clinical toxicology of commercial products. 5th ed. Baltimore: Williams and Wilkins, 1984:111-204.
8. Gapany-Gapanavicius M, Molho M, Tirosh M. Chloramine-induced pneumonitis from mixing household cleaning agents. Br Med J 1982;285:1086.
9. Litovitz TL, Bailey KM, Mitz BF, et al. 1990 Annual report of the American Association of Poison Control Centers national data collection system. Am J Emerg Med 1991;9:461-509.

Chlorine Gas Toxicity— Continued

10. Office of the Federal Register. Code of federal regulations: hazardous substances labeling guide. Washington, DC: Office of the Federal Register, National Archives and Records Administration, 1984. (16 CFR 1500.121).
11. Occupational Safety and Health Administration. Preamble to final rule on hazard communication. Federal Register 1983;48:53337.
12. Occupational Safety and Health Administration. Hazard communication. Federal Register 1987; 52:31852-86.
13. Occupational Safety and Health Administration, Office of Health Compliance Assistance. Inspection procedures for the hazard communication standard. Washington, DC: Occupational Safety and

Notices to Readers**AIDS Clinical Trials Information Service**

The AIDS Clinical Trials Information Service (ACTIS) provides current information on federally and privately sponsored clinical trials being conducted to evaluate drugs and therapies to treat all stages of human immunodeficiency virus (HIV) infection in adults and children and to treat related opportunistic infections. ACTIS is a Public Health Service project provided collaboratively by CDC, the Food and Drug Administration (FDA), the National Institute of Allergy and Infectious Diseases, and the National Library of Medicine (NLM).

The ACTIS database includes information on more than 300 clinical trials and more than 100 drugs being tested. Information is available on the purpose of the study protocol, the location, the eligibility requirements, the exclusion criteria, and the names and telephone numbers of contact persons. ACTIS provides information on all AIDS clinical trials sponsored by the National Institutes of Health and on studies of all treatments undergoing clinical testing for effectiveness in privately sponsored trials approved by FDA.

ACTIS is a resource for health professionals and for HIV-infected persons and their families. All calls are completely confidential. Health specialists provide information to callers over the telephone and can, on request, send callers a printout of a customized search of the clinical trials database. A bilingual health specialist is available for Spanish-speaking callers. ACTIS information can also be accessed through two online databases, AIDSTRIALS and AIDSDRUG, available through NLM.

ACTIS can be reached by calling (800) 874-2572 ([800] TRIALS-A); fax: (301) 738-6616; TTY/TDD: (800) 243-7012; international line: (301) 217-0023. ACTIS is operated by CDC's National AIDS Clearinghouse.

**Institute of Medicine Report on Shortage
of Occupational and Environmental Medicine Physicians**

In 1989, the Institute of Medicine (IOM) estimated a national shortage of 3100 to 5500 physicians with special competence in occupational and environmental (O-E) medicine. In 1991, an IOM subcommittee made six recommendations concerning how federal and state governments, medical schools, and medical societies can counter this shortage in a report entitled "Addressing the Physician Shortage in Occupational and Environmental Medicine." The study was sponsored by the Public Health Service, Agency for Toxic Substances and Disease Registry (ATSDR), National Institute of Environmental Health Sciences, and Environmental Protection Agency.

Notices to Readers—Continued

IOM's six specific measures to alleviate the shortage of O-E physicians are: 1) integrate occupational and environmental medicine into medical school curricula to increase students' interest in these fields; 2) establish 10-15 centers to train future teachers and researchers in occupational and environmental medicine; 3) expand occupational medicine to include the fledgling field of environmental medicine, thereby increasing the number of physicians competent to practice in either area; 4) increase funding to support medical school faculty members committed to teaching and research in occupational and environmental medicine; 5) increase support for residency and fellowship training; and 6) adopt new routes to certification and accreditation in occupational and environmental medicine.

Copies of "Addressing the Physician Shortage in Occupational and Environmental Medicine" are available from the Director, Division of Health Education, ATSDR, 1600 Clifton Road, NE, Mailstop E-33, Atlanta, GA 30333; telephone (404) 639-0730.

Laboratory Performance Information Exchange System

CDC's Public Health Practice Program Office, Model Performance Evaluation Program, invites laboratories to participate in its recently enhanced, computer-based electronic information exchange system. This system, called the Laboratory Performance Information Exchange System (LPIES), was developed to improve laboratory performance through retroviral and acquired immunodeficiency syndrome (AIDS)-related testing problem identification and resolution; electronic messages and conferences for communication among laboratorians; electronic collection and distribution of laboratory testing performance evaluation data; and access to AIDS-related laboratory information.

The electronic communication system can be accessed by calling (800) 522-6388 ([800] LAB-NETT). For persons in countries other than the United States, the telephone number is (919) 549-9109. The system is compatible with most computers, modems, and communications programs and protocols; no user fees or line charges are incurred by the user.

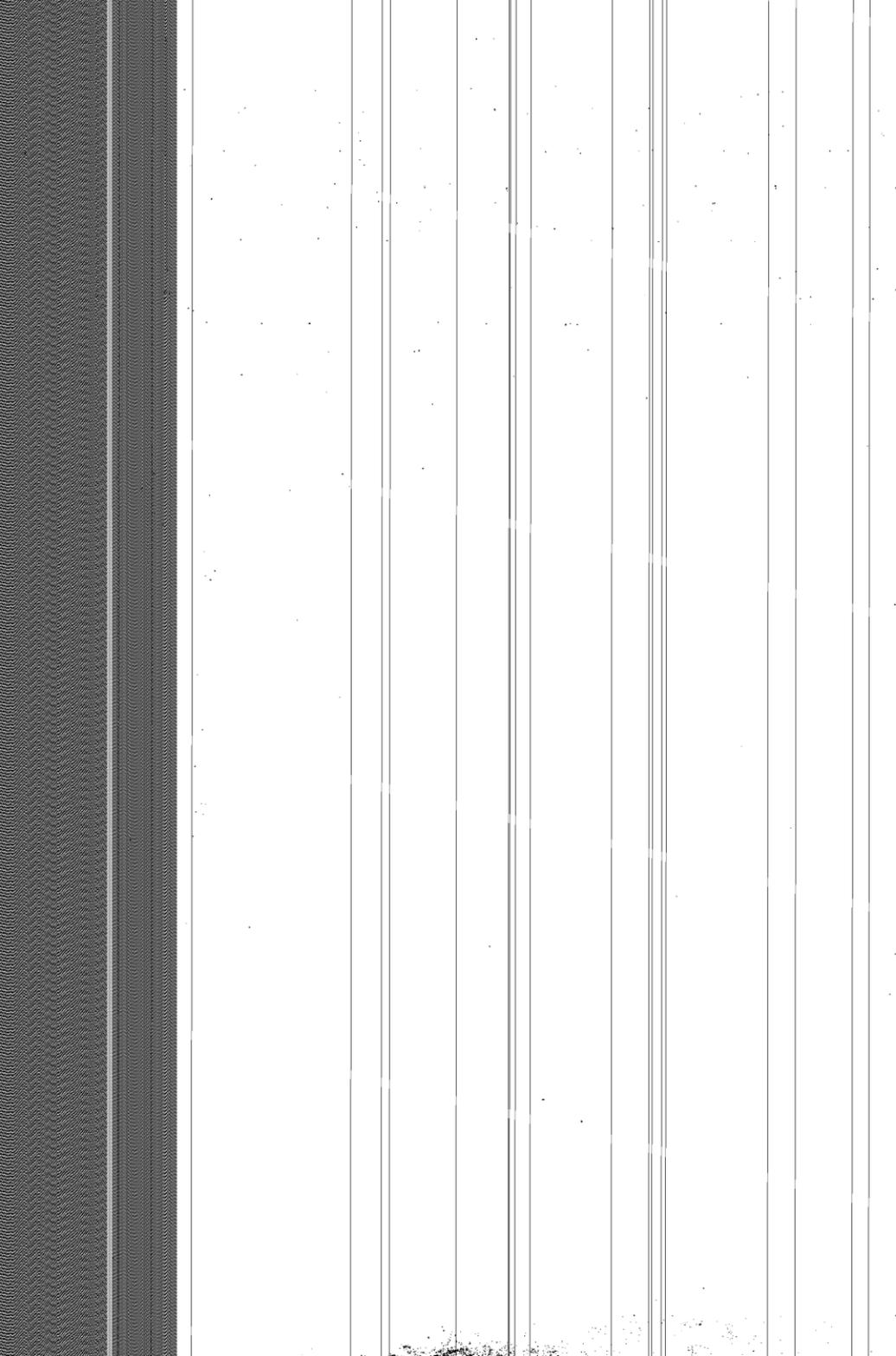
Additional information is available from the LPIES system manager, telephone (800) 322-4383 (in North Carolina, telephone [919] 549-8330), or CDC's Public Health Practice Program Office, telephone (404) 639-2137.

Errata: Vol. 40

In SS-2, the surveillance summary number (SS-2) was listed correctly on the cover and inside front cover. However, the number listed at the top of each page and the inside back cover was incorrect and should read SS-2 instead of SS-1.

In addition, in the SS-2 report entitled "Abortion Surveillance, United States, 1988," the following footnotes were omitted from Figure 3 on page 42: $\uparrow \leq 8$ weeks gestation. $\S \geq 16$ weeks gestation.

In the article "Participation of High School Students in School Physical Education—United States, 1990" (issue no. 35) on page 613, the last sentence of the first paragraph of the editorial note should read, "However, enrollment in PE, a necessary prerequisite for attendance in PE classes, may have decreased (Figure 1), from a total of 65% in 1984 to 52% in 1990...."



The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and is available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 783-3238.

The data in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. Inquiries about the *MMWR* Series, including material to be considered for publication, should be directed to: Editor, *MMWR* Series, Mailstop C-08, Centers for Disease Control, Atlanta, GA 30333; telephone (404) 332-4555.

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